

### ABSTRACT OF THE DISCLOSURE

5 A method and apparatus for ultrafiltration of blood operating by removing blood from a peripheral blood vessel at a rate of less than two percent of total cardiac output of a patient, extracting fluid at a rate of 0.1 liter to 1.0 liters per hour while retaining cells and proteins in the blood, and returning the concentrated blood to a secondary blood vessel is disclosed. Blood is removed and returned using small gage needles. As a pump circulates blood from the patient, a filter removes ultrafiltrate from the blood using duty cycle or pump control, and a  
10 transparent container collects the removed fluid.